

PATIENT

Troy Alatorre

SPECIES

Canine

BREED

Doberman X

SEX

Intact Male

AGE

4 Years

WEIGHT

105 Pounds

PRESENTING CLINICAL SIGNS

Patient presented with bloody diarrhea for several days and now vomiting with traces of blood. No cough or lethargy. Abdominal Radiographs reveal intra-abdominal liver appears relatively small. Chest radiographs reveal large cardiac silhouette with normal sized heart. Suspect pericardial-peritoneal diaphragmatic hernia.

Abnormal PE/Chem/CBC/UA Results: BW elevated liver enzymes

ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN

CANINE CARDIAC PARAMETERS	MR VMAX (m/s)	TR VMAX (m/s)	LA/AO (Boon method)	LA/AO (Heart Base; Swe)	FS (%)	EF (%)	EPSS (cm)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	<1.6	28-40	40-100	<0.6
PATIENT			NM	1.4	36.4	49.5	0.25
CANINE CARDIAC PARAMETERS	HR (BPM)	AV VMAX (m/s)	PV MAX (m/s)	BODY WEIGHT (kg)	LA 2D short axis Base view (cm)	LVIDd Avg; 2D and m-mode short axis (cm)	LVIDs Avg; 2D and m-mode short axis (cm)
NORMAL PARAMETER	50-100	0.7-1.7	0.7-1.6				
PATIENT	NM	1.3	0.8		3.0	3.3	

INTERPRETED BY

R. McKenzie Daniel,
DVM, DABVP
(Canine and Feline)

IMAGING PERFORMED BY

Kim Liedberg

HOSPITAL NAME

SVS Imaging WI

REFERRING VET

Dr. Dolan, Advanced
Animal Hospital

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DATE

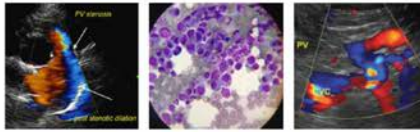
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Cardiac Presentation

The echocardiogram in this patient demonstrated normal **left atrial** size based on 3 separate methods of LA evaluation. The cranial and caudal **mitral** valve leaflets presented normal linear structure, extension in systole, and union in diastole with normal kinesis. The **left ventricle** presented thicknesses with linear contour and was not dilated nor restricted. The **myocardium** presented normal echogenicity without subjective evidence of significant fibrotic or ischemic disease. **Contractility** of the ventricular walls was adequate and in normal range for this patient evidenced by the fractional shortening measurement and subjective evaluation of the different regions of the myocardium. The **left ventricular outflow** tract demonstrated subjective normal laminar flow and normal structural integrity. The **right atrium** and auricle revealed normal size, structure and content. No evidence of masses was noted. **Tricuspid** valvular assessment demonstrated adequate linear morphology and kinesis. The **right ventricle** was of normal size (1/3 diameter of LV), chordae structure, myocardial echogenicity and thickness. **Pulmonary outflow** tract assessment revealed subjective normal valve structure, laminar flow, and diameter (approx. 1:1 pa/ao ratio). Normal appearing hepatic parenchyma noted within the pericardial space directly adjacent to the heart. The gallbladder was also subjectively present within the pericardial space. No evidence of pericardial or free pleural fluid. The cranial mediastinum and extracardiac regions were free of masses in the visible window.

Urinary System

The urinary bladder, trigone, cystourethral junction, and visible pelvic urethra to a depth of – cm exhibited normal thickness and tone. Anechoic urine was present in the lumen with no uroliths or sediment. The ureteral papillae were normal. The ureters were not visible which is normal. No evidence of inflammatory or neoplastic changes were noted.

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The prostate was mildly enlarged in size (5.0 cm x 4.0 cm) with intact, symmetrical capsule contour. The margins of the gland were intact and able to be differentiated from the surrounding tissue. The prostatic parenchyma was mildly echogenic to heteroechoic without parenchymal mineralization.

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The area of the aortic trifurcation was free of pathology.

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Normal size and margination were present in the kidneys. A normal 1:3 cortex / medulla ratio and normal corticomedullary definition were maintained. The echogenicity of the cortex was similar to or slightly less than normal liver parenchyma while the medulla echogenicity was hypoechoic to the cortex with no evidence of pelvic dilation. The left kidney measured 6.6 cm. The right kidney measured 6.8 cm.

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Adrenal Glands

The adrenal glands were uniform in size and contour with a uniformly hypoechoic parenchyma. The left adrenal gland measured 0.53 cm at the cranial pole and 0.66 cm at the caudal pole. The right adrenal gland measured 0.66 cm at the cranial pole and 0.67 cm at the caudal pole.

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Spleen

The spleen exhibited a finely textured and homogenous parenchyma which was hyperechoic to the liver and renal cortical parenchyma. The capsule was smooth and regular without apparent expansion. The splenic vasculature at the hilus was normal in volume with no evidence of congestion or thrombosis. Acute to chronic inflammatory, neoplastic, or benign parenchyma changes were not noted.

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Liver

Intraabdominal views of the liver revealed subnormal liver size, yet sonographically unremarkable parenchyma. The gallbladder was not definitively visualized with the cranial abdominal cavity.

INTERPRETED BYR. McKenzie Daniel,
DVM, DABVP
(Canine and Feline)**Gastrointestinal**

The visualized gastric walls were sonographically unremarkable with intact wall layering. The stomach exhibited subjective mild to moderate distention with luminal gas. No overt evidence of retained ingesta, fluid or overt foreign material. Ventral gastric body wall measured 0.40 cm.

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Kim Liedberg

The small intestine presented intact wall layering with 1:3 muscularis/mucosa ratio. The lumen of the small intestine was empty with no signs of ileus, obstruction or foreign material. Jejunum wall measured 0.28 cm.

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Normal visible colon wall layers were present with subjective semi formed feces in lumen. Visualized colon wall measured 0.31 cm.

REFERRING VETDr. Dolan, Advanced
Animal Hospital**Pancreas**

The parenchyma of the left limb, body and right limb of the pancreas presented isoechoic to the adjacent omental fat. A normal curvilinear capsule contour of the pancreas was present. The visible pancreatic duct was normal. No signs of active inflammation or neoplastic disease was evident.

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Free Abdomen

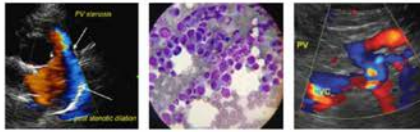
No overt lymphadenopathy or peritoneal effusion was present.

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ULTRASONOGRAPHIC FINDINGS

- Pericardial/peritoneal diaphragmatic hernia
- Secondary subnormal intraabdominal liver
- Overtly normal cardiac structure and function



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- Sonographically unremarkable gastrointestinal tract – suspect mild gastroenterocolitis.
- Benign prostatic hyperplasia, mild

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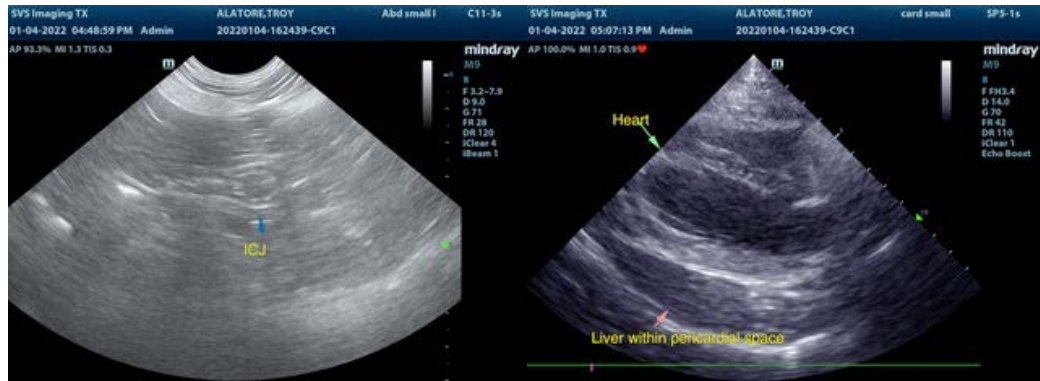
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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Given the presence of liver within the pericardial sac, and subnormal intraabdominal liver size, this study confirms the presence of pericardial/peritoneal diaphragmatic hernia. Potential mild reduced yet adequate cardiac function secondary to pericardial presence of liver. No other significant thoracic or abdominal visceral pathology. Dietary indiscretion/food intolerance, infectious gastroenterocolitis, occult parasitism, or structurally insignificant inflammatory gastroenterocolonopathy possible.

Continued as needed gastrointestinal support recommended. Surgical consult +/- thoracoabdominal CT for further clarification and potential surgical planning may be considered.



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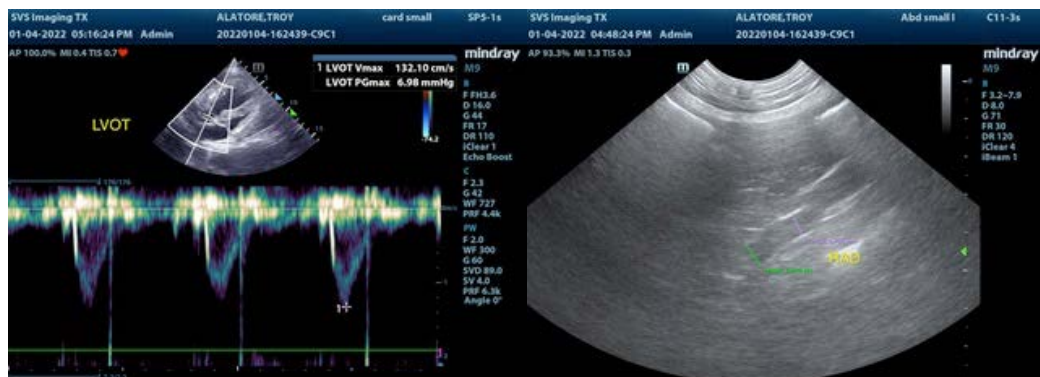
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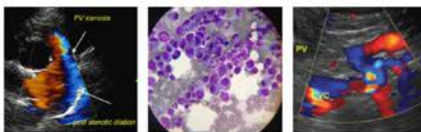
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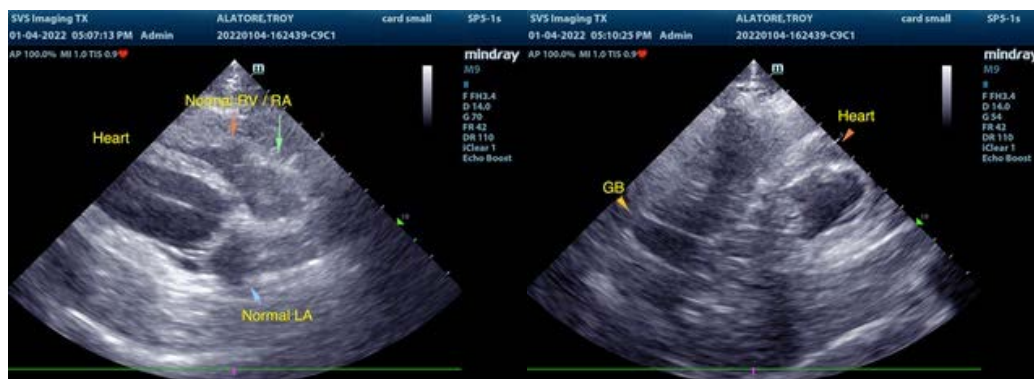
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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

Thank you for this referral. If the clinical or image interpretation does not parallel your findings or if I can be of any further assistance please contact me.

R. McKenzie Daniel, DVM, DABVP (Canine / Feline Practice)

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